

Abstract

Please enter the abstract of the disclosure submitted as a separate paper herewith.

In the Specification

Please add the following paragraph to the description as follows:

On page 1, after the title of the invention, please add the following section heading and accompanying paragraph:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a U.S. national counterpart application of international application serial No. PCT/SE00/01630 filed August 24, 2000, which claims priority to Swedish application serial no. 9903018-1 filed August 24, 1999.

In the Claims

Please amend claims 1-10 as follows:

Sub B77 1. (AMENDED) A locking device for a wire line core drill comprising an inner tube by means of which core samples are collected, and an outer tube connected to a drill bit, which locking device is applied in the rear end of the inner tube wherein the locking device comprises locking members so designed that, when the inner tube has been inserted into the outer tube and has assumed the correct position inside the outer tube for drilling, in one and the same movement it simultaneously effects mechanical locking of the inner tube in relation to the outer tube and mechanical release of a gripping means of an accompanying device connected to the inner tube.

A2 2. (AMENDED) A locking device as claimed in claim 1 wherein the locking device also comprises gripping means that, when the inner tube is to be retracted from the outer tube with the aid of a retriever device comprising gripping means, and said gripping means of the retriever device come into contact with the gripping means of the locking device, in one and the same movement, shall engage with the gripping means of the retriever device and simultaneously release the inner tube from its locked position in relation to the outer tube.

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3. (AMENDED) A locking device as claimed in claim 1 wherein said locking device comprises at least two forward protrusions directed radially outwards and at least two forward protrusions directed radially inwards, said forward outwardly directed protrusions being intended to achieve locking of the inner tube in relation to the outer tube and said forward inwardly directed protrusions being intended to firmly lock the gripping means of the accompanying device during insertion into the outer tube, and to release the gripping means of the accompanying device when the inner tube has assumed its correct position in the outer tube for drilling.

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4. (AMENDED) A locking device as claimed in claim 3 wherein it comprises at least two parts, in that each of these parts comprises at least one of said protrusions, and in that each of said parts is journalled pivotably in the inner tube in radial direction about a shaft situated between the gripping means of the locking device and its forward protrusions so that the forward protrusions can pivot outwards in radial direction at the same time as the gripping means of the locking device can pivot inwards, and vice versa, whereupon the forward outwardly directed protrusions effect locking of the inner tube in relation to the outer tube by pivoting outwards through openings arranged in the inner tube and engage with recesses arranged on the inside of the outer tube, at the same time as the forward inwardly directed protrusions also pivot outwards and mechanically release the gripping means of the accompanying device when the inner tube has assumed the correct position in the outer tube for drilling.

5. (AMENDED) A locking device as claimed in claim 3 wherein, in order to achieve retraction of the inner tube, the gripping means of the retriever device forces the gripping means of the locking device to pivot outwards so that they engage with the gripping means of the retriever device, and the forward protrusions thus pivot inwards so that the forward protrusions disengage with said recesses in the outer tube and thus release the inner tube from its locked position in relation to the outer tube.

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6. (AMENDED) A locking device as claimed in claim 5 wherein the gripping means of the locking device comprise at least two rear protrusions directed radially inwards.

7. (AMENDED) A locking device as claimed in claim 3 wherein said inner tube of the wire line core drill is provided with a valve for flushing medium, and in that said forward inwardly directed protrusions are designed to mechanically retain and mechanically release a gripping means connected to said valve, whereupon the valve is opened.

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8. (AMENDED) A locking device as claimed in claim 3 wherein said accompanying device is an insertion device for inserting an inner tube into an outer tube, which is provided with gripping means, and in that said forward inwardly directed protrusion are designed, in their inwardly pivoted position and during insertion of the inner tube into the outer tube, to be in engagement with the gripping means of said insertion device, and assume their outwardly pivoted position when the inner tube has assumed the correct position inside the outer tube for drilling, whereupon the locking device is disengaged from the gripping means of the insertion device, so that said means can be removed together with its insertion device.

9. (AMENDED) A wire line core drill system comprising an inner tube by means of which core samples are collected, and an outer tube connected to a drill bit provided with a locking device as claimed in claim 1.

10. (AMENDED) A method for wire line core drilling using a wire line core drill comprising an inner tube by means of which core samples are collected, and an outer tube connected to a drill bit, which inner tube is provided with a locking device to position the inner tube in the correct position in the outer tube for drilling, and to firmly lock the inner tube to the outer tube in said correct position by means of first locking members, wherein the inner tube is inserted into the outer tube, whereupon said first locking members are in a retracted position and second locking members of the locking device mechanically

lock a gripping means of an accompanying device connected to the inner tube during insertion, until the inner tube has assumed the correct position in the outer tube, and when the inner tube has assumed the correct position inside the outer tube the locking device, in one and the same movement simultaneously effects mechanical locking of the inner tube to the outer tube and mechanical release of said gripping means of the accompanying device.

Please add new claims 11-21 as follows:

11. (NEW) A locking device as claimed in claim 2 wherein said locking device comprises at least two forward protrusions directed radially outwards and at least two forward protrusions directed radially inwards, said forward outwardly directed protrusions being intended to achieve locking of the inner tube in relation to the outer tube and said forward inwardly directed protrusions being intended to firmly lock the gripping means of the accompanying device during insertion into the outer tube, and to release the gripping means of the accompanying device when the inner tube has assumed its correct position in the outer tube for drilling.

12. (NEW) A locking device as claimed in claim 11 wherein it comprises at least two parts, in that each of these parts comprises at least one of said protrusions, and in that each of said parts is journalled pivotably in the inner tube in radial direction about a shaft situated between the gripping means of the locking device and its forward protrusions so that the forward protrusions can pivot outwards in radial direction at the same time as the gripping means of the locking device can pivot inwards, and vice versa, whereupon the forward outwardly directed protrusions effect locking of the inner tube in relation to the outer tube by pivoting outwards through openings arranged in the inner tube and engage with recesses arranged on the inside of the outer tube, at the same time as the forward inwardly directed protrusions also pivot outwards and mechanically release the gripping means of the accompanying device when the inner tube has assumed the correct position in the outer tube for drilling.

13. (NEW) A locking device as claimed in claim 4 wherein, in order to achieve retraction of the inner tube, the gripping means of the retriever device forces the gripping means of the locking device to pivot outwards so that they engage with the gripping means of the retriever device, and the forward protrusions thus pivot inwards so that the forward protrusions disengage with said recesses in the outer tube and thus release the inner tube from its locked position in relation to the outer tube.

14. (NEW) A locking device as claimed in claim 11 wherein, in order to achieve retraction of the inner tube, the gripping means of the retriever device forces the gripping means of the locking device to pivot outwards so that they engage with the gripping means of the retriever device, and the forward protrusions thus pivot inwards so that the forward protrusions disengage with said recesses in the outer tube and thus release the inner tube from its locked position in relation to the outer tube.

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15. (NEW) A locking device as claimed in claim 12 wherein, in order to achieve retraction of the inner tube, the gripping means of the retriever device forces the gripping means of the locking device to pivot outwards so that they engage with the gripping means of the retriever device, and the forward protrusions thus pivot inwards so that the forward protrusions disengage with said recesses in the outer tube and thus release the inner tube from its locked position in relation to the outer tube.

16. (NEW) A locking device as claimed in claim 13 wherein the gripping means of the locking device comprise at least two rear protrusions directed radially inwards.

17. (NEW) A locking device as claimed in claim 14 wherein the gripping means of the locking device comprise at least two rear protrusions directed radially inwards.

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18. (NEW) A locking device as claimed in claim 15 wherein the gripping means of the locking device comprise at least two rear protrusions directed radially inwards.

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19. (NEW) A locking device as claimed in claim 4 wherein said inner tube of the wire line core drill is provided with a valve for flushing medium, and in that said forward inwardly directed protrusions are designed to mechanically retain and mechanically release a gripping means connected to said valve, whereupon the valve is opened.

20. (NEW) A locking device as claimed in claim 5 wherein said inner tube of the wire line core drill is provided with a valve for flushing medium, and in that said forward inwardly directed protrusions are designed to mechanically retain and mechanically release a gripping means connected to said valve, whereupon the valve is opened.

21. (NEW) A locking device as claimed in claim 6 wherein said inner tube of the wire line core drill is provided with a valve for flushing medium, and in that said forward inwardly directed protrusions are designed to mechanically retain and mechanically release a gripping means connected to said valve, whereupon the valve is opened.